

**Real Estate Investment: A Strategic Approach  
Fourth Edition, 2023**

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**Chapter Thirteen**  
Portfolio attribution

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**Style: manager types**

- Manager A: 'we are good at forecasting sectors'
  - Top down
- Manager B: 'we are good at picking buildings'
  - Bottom up
- This produces the standard two term attribution

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## Property fund manager styles

- What are the typical property fund manager styles?
  - **Top-down**, research-led, passive
  - **Bottom-up**, deal-led, opportunity funds, active
  - Sector specialists
  - Value and growth
  - Theme-based: rotational
- What are the typical property fund manager performance drivers?
  - Structure
  - Stock

## Segmentation

- Coherent market segments: common economic drivers
- Manageable by a single team which can be rewarded for its performance
- Benchmark information available
  - IPD segments: property type, property location

## Portfolio attribution

- Two components to risk: structure and stock
  - first comes from position relative to benchmark
  - second comes from unique individual buildings
- The larger the bets, the riskier the portfolio
- If structure identical to benchmark: all risk is *stock specific*
- Which is most important? IPD method and data typically allocates 75%+ to stock
- Example: out-performance (1.0) = structure (0.1) + stock (0.9)

## Structure and stock: example

BENCHMARK					
	Weight	Bet	Return	Relative	
UK	30%	0%	10%	0%	
France	25%	0%	5%	0%	
Netherlands	25%	0%	-5%	0%	
Germany	20%	0%	25%	0%	
Portfolio	100%		8.00%		
PORTFOLIO					
	Weight		Return		
UK	30%	0%	12%	2%	
France	50%	25%	6%	1%	
Netherlands	5%	-20%	-10%	-5%	
Germany	15%	-5%	20%	-5%	
Portfolio	100%		9.10%		

## Out-performance

- Fund: 9.1%
- Benchmark: 8.0%
- Out-performance: 1.1%
- Attribution?
  - Structure
  - Stock

## The structure component

- UK: no structure component
- France: 25% bet, -3% result, -0.75% contribution
- Netherlands: -20% bet, -13% result, 2.6% contribution
- Germany: -5% bet, 17% result, -0.85% contribution
- Total structure score:  $-0.75\% + 2.6\% - 0.85\% = 1\%$

## The stock component

- UK: 30% weight, 2% result, 0.6% contribution
- France: 50% weight, 1% result, 0.5% contribution
- Netherlands: 5% weight, -5% result, -0.25% contribution
- Germany: 15% weight, -5% result, -0.75% contribution
- Total stock score:  $0.6\% + 0.5\% - 0.25\% - 0.75\% = 0.1\%$

## How are allocations made?

- Allocator
  - uses forecasts of benchmark sectors to allocate?
  - uses forecasts of return on current stock plus benchmark sectors to allocate?
  - uses subjective judgement regarding skills of sector specialists to allocate?
- Selector
  - buys, manages and sells
- Two terms may be correct: but should the cross-product be allocated to the allocator?

## Structure and stock: example

Additive attribution					
	structure	stock	pure stock	cross prod	total
UK	0.00%	0.60%	0.60%	0.00%	
France	-0.75%	0.50%	0.25%	0.25%	
Netherlands	2.60%	-0.25%	-1.25%	1.00%	
Germany	-0.85%	-0.75%	-1.00%	0.25%	
Portfolio	1.00%	0.10%	-1.40%	1.50%	
					1.10%

Who deserves the bonus?

## Attribution case

- Fund A (€1bn) is invested in retail (€400m), offices (€500m) and residential (€100m) property sectors. The benchmark has 30%, 40% and 30% respectively in these sectors
- The fund returns were 13%, 18% and 9% for retail, office and residential sectors. The benchmark returns were 10%, 20% and 10% for retail, office and residential sectors

## Attribution case

- Estimate:
  - the fund return
  - the benchmark return
  - the fund's structure component
  - the fund's property component
  - the contribution of each sector to total return
- Discuss how fair a representation of manager performance these values are where:
  - the CIO allocates cash according to market forecasts;
  - the CIO allocates cash according to the sector manager's property skills;
  - there is no top-down allocation process

## Definitions

$W_{ps}$  = sector weight for portfolio

$W_{ms}$  = sector weight for market

$TR_{ms}$  = sector total return for market

$TR_m$  = total return for market

$TR_{ps}$  = sector total return for portfolio

$Bet$  = portfolio weight – market weight

**Formulae: additive***Structure score: bets and sector relatives*

$$= (Wps - Wms) * (TRms - TRm)$$

*Property score: portfolio weight and stock relatives*

$$= Wps * (TRps - TRms)$$

*Pure property score: market weight and stock relatives*

$$= Wms * (TRps - TRms)$$

*Cross product: bets and stock relatives*

$$= (Wps - Wms) * (TRps - TRms)$$

**Formulae: geometric***Structure score: bets and sector relatives*

$$= (Wps - Wms) * [(1+(TRms/100))/(1+(TRm/100)) - 1] * 100$$

*Property score: portfolio weight and stock relatives*

$$= Wps * [(1+(TRps/100))/(1+(TRms/100))-1] * 100$$

*Pure property score: market weight and stock relatives*

$$= Wms * [(1+(TRps/100))/(1+(TRms/100))-1] * 100$$

*Cross product: bets and stock relatives*

$$= (Wps - Wms) * [(1+(TRps/100))/(1+(TRms/100)) - 1] * 100$$

## Results: additive

- IPD return: 14.0%
- Fund return: 15.1%
- Out-performance: 1.1%
- Components:
  - Structure 1.0
  - Stock 0.1
  - Pure stock - 0.2
  - Cross product 0.3
  - Sum of structure and stock scores: 1.1
  - Sum of structure, pure stock, cross product: 1.1

## Results: geometric

- IPD return: 14.0%
- Fund return: 15.1%
- Out-performance: 0.96%
- Components:
  - Structure score: 0.8772
  - Stock score: 0.1667
  - Pure stock score: -.0212
  - Cross product: 0.2879
  - Sum of structure and stock scores: 1.0439
  - Sum of structure, pure stock, cross product: 1.0439

### Arithmetic or geometric?

- Arithmetic sums stock and structure impacts to total excess return in any one period – but not compounded over more than one period
- IPD uses geometric
  - compounded stock and structure contributions over more than one period are accurate
  - relative returns can be more meaningful: 0.5% on 25% is not the same as 0.5% on 2%

### Two or three terms?

- The cross-product term is that part of out/under-performance attributable to the fund's 'bets' multiplied by the segment's relative stock performance
- A 'top down' approach to fund management where allocators set-out structural weighting (or bets) based on pure forecasting calls for a two term allocation
- If the allocation approach is based on a combination of market forecasts and perceived areas of the market where their selectors are highly skilled, the third term is needed to reflect the superior segment specific stock selection bets

### Two or three terms?

- Where the CIO allocates cash according to forecasts, an overweight position in an out-performing market sector should produce a reward for the CIO. This has been achieved
- Where the CIO allocates cash according to the sector manager's property skills an overweight position in an out-performing portfolio sector should produce a positive reward for the CIO. This is provided by the cross-product, which is positive
- Where there is no top-down allocation process the only score of importance is the property score. But which? The benchmark has no relevance, because there is no top-down process. So the property (not pure property) score, again positive, means a bonus for the manager